

APPENDIX D

Urban and Agricultural Demand Projections

OVERVIEW

Water demands in this 2005–2006 LWC Plan Update are considered both in terms of the water needed to meet the demands of the users/customers (net demand) and the withdrawal demands (gross demands) on the water resources. This appendix explains and presents projections for both the user/customer demands and the demands on the water resources.

In previous water supply plans, the net demands and water withdrawal demands were identified together. This approach, however, had to be modified to address the situations in which net and gross demands differ. For instance, in the LWC Planning Area, a large percentage of new utility demands are being met using brackish water sources, and withdrawals from these sources are 20 percent to 25 percent higher than those from freshwater sources using conventional treatment processes. This is due to the water treatment process at reverse osmosis (RO) plants, which yields both potable water (about 75 percent to 80 percent) of water entering the plant and a concentrate containing the salts (about 20 percent to 25 percent) of water entering the plant.

Demand assessments for 2000 and projections through 2025 in five-year time frames are presented in this appendix for the following water use categories:

- Public Water Supply.
- Domestic Self-Supply and Small Public Supply Systems.
- Commercial and Industrial Self-Supply.
- Recreational Self-Supply.
- Thermoelectric Power Generation Self-Supply.
- Agricultural Self-Supply.

The Public Water Supply category encompasses potable water supplied by water treatment facilities with projected average pumpages greater than 100,000 gallons per day (GPD) in 2025 to all types of customers, not just residential. Within this water use category, net demands which reflect customer demands are referred to as “finished water demands” since they are measured by the treated water leaving the plants. The other five water use categories are self-supplied. The Domestic Self-Supply category includes households whose sources of domestic water are private wells, as well as small utilities. Commercial and Industrial Self-Supply refers to self-supplied business operations. Recreational Self-Supply includes irrigation demands for golf courses and other large landscaped areas, such as parks and cemeteries. Thermoelectric Power Generation Self-Supply water primarily represents replacement water for evaporative losses from cooling water and boiler make-up water at power plants. Agricultural water use includes demands for crop irrigation.

GENERAL DESCRIPTION OF METHODOLOGY AND DATA SOURCES

This section describes the data, information and procedures used to develop the water demand estimates for this 2005–2006 LWC Plan Update. The demands are those of the people of the LWC Planning Area and their activities, especially as reflected in land use. Therefore, estimates and projections of population and land use are basic to estimating water demands. These estimates and projections need to reflect appropriate breakdowns by location and type of use (e.g., crop type for agricultural use). Another key is to develop appropriate use factors that can be applied to the population and land use information as appropriately defined and broken down by location and use type.

The water demand projections include analyses during average rainfall conditions and 1-in-10 year drought demand conditions, as mandated by Subsection 373.0361(2)(a)I, Florida Statutes (F.S.).

Activity Factors

Population

Of the six use categories, population is the chief independent variable for projection purposes for public water supplies and domestic self-supplies.

2000 Population

U.S. Census data was used as the basis for the 2000 population and the distribution of that population to sub-county areas. Census block level information from the census count was used as the basic unit of analysis. Total population, occupied housing units and persons per occupied housing unit were obtained from the Census for blocks within each county.

Information from District permit files and data from utilities were used to define the areas served by each utility. The utilities' data was especially important in identifying the areas actually served by each utility because, in many cases, these areas were somewhat smaller than the franchised and permitted service areas. The focus on areas actually served by utilities allowed for a closer correspondence between the estimated population and the population served. While data from the 1990 and earlier Censuses had identified the source of water for households, this was no longer included in the 2000 Census. Populations in areas not served by utilities were included as self-supplied population.

The geographic areas represented by the census blocks and utility-served areas were input as polygon layers into the SFWMD Geographic Information System (GIS). The two layers were overlaid to determine if census blocks were inside or outside the

area served by each utility. Imagery was used to review decisions when necessary. The populations by census block for each Public Water Supply utility and for Domestic Self-Supply users were then calculated. The populations for each utility-served area were then totaled.

In Glades, Hendry and Charlotte counties, portions of the population were assigned to the Kissimmee Basin (KB) Planning Area, the Lower East Coast (LEC) Planning Area and the Southwest Florida Water Management District (SWFWMD), respectively. These shares were based on detailed analyses from the 2000 Census distributions of population. The split of Charlotte County's population between the KB Planning Area and the SWFWMD was obtained from a detailed study conducted for the SWFWMD (GIS Associates 2004).

Population Projections

The goal of water supply planning is to use the best available data to estimate future populations. For estimating county populations, the latest medium county population projections published by the Bureau of Economics and Business Research (BEBR) of the University of Florida are primarily used. In preparing this plan update, the BEBR's county level projections were used for Lee, Hendry, Glades and Charlotte counties. These projections are updated on an annual basis, and the projections used were issued in February 2006 (BEBR 2006). For Collier County, alternative projections, which were approved for use by the Florida Department of Community Affairs (FDCA), show higher growth than the latest medium BEBR projections. The BEBR projections and the alternative projections used for Collier County provided county level controls in five-year increments from 2000 to 2025. For Glades, Hendry and Charlotte counties, the portions of the population assigned to the KB Planning Area, the LEC Planning Area and the SWFWMD were the same as those developed for 2000, based on Census of Population data.

For Collier and Lee counties, the projected share of total county population growth for each utility service area was based on the projected traffic analysis zone (TAZ) population growth in each county. Traffic zone analyses are useful in projecting distribution of population because they analyze relatively small population areas and are integrated into each county's transportation planning process. In Collier County, there are 439 TAZs, while in Lee County there are 1,318 TAZs.

In addition, GIS information on the areas each utility expects to serve in the future was obtained from the utilities. The two layers were overlaid to determine if traffic analysis zones were inside or outside the area served by each utility. Population estimates were then calculated for each utility by deciding which polygons were inside or outside of utility-served boundaries. The populations for each utility-served area were then totaled. For Hendry, Glades and Charlotte counties, TAZ projections were not available and the future distribution of population estimates generally followed the historic shares of population.

The projections used in this plan update are believed to represent a reasonable balance of long- and short-term factors affecting the development of the LWC Planning Area. However, recent proposals for the development of large communities in Charlotte and Hendry counties, which are not anticipated in the recent growth trends, and the continuing high growth rate in Collier and Lee counties emphasize the uncertainties associated with 20-year population projections.

As a new requirement of state law, specific Water Supply Development projects are included in this plan update to address projected needs for the next 20 years. The District recognizes that there are public water supply utilities conducting detailed studies to estimate population and demand increases, and identify the most appropriate water supply project options to meet future needs. In addition, other large water users, especially thermoelectric utilities and agricultural users, will require time to identify the specific water supply projects intended to meet water needs for the next 20 years. For these reasons, the District will consider amending the regional water supply plans on an annual basis for the next three years to allow for the inclusion of additional, specific alternative water supply projects. Such amendments, if needed, are proposed to be done during January and February for the next three years. Only local governments that are affected by the additional alternative water supply projects would be required to amend their comprehensive plans, consistent with the requirements of Section 163.3177(6)(c), F.S. It is anticipated that at the end of the three-year period, that this annual plan amendment process would be re-evaluated.

Land Use Projections

Land use projections were developed jointly for the LWC Plan Update and Southwest Florida Feasibility Study (SWFFS). The two study areas differ in only a few areas. The 2005–2006 LWC Plan Update has a planning horizon through 2025 and the SWFFS has a planning horizon through 2050. In order to support hydrologic modeling and the development of project alternatives, the spatial distribution of land use was estimated for 2025 and 2050 conditions. Additional details on this effort can be found in *Estimation of Spatially Distributed Future Land Use in a Rapidly Developing Area* (Liebermann 2006).

The spatial distribution method used the most current GIS datasets of land use categories, public and conservation lands, and county growth plans. County and municipal planners verified the growth plans. Agricultural experts provided verification of the current and build-out acreages expected by the major producers. These and other GIS layers were combined for analysis. Logical rules were developed to resolve the combination of layers and competing future uses, and to differentiate between 2025 and 2050 conditions. It is recognized that the projections resulting from these rules simply represent one “best estimate” out of many possible scenarios. It is quite possible that urban growth will exceed these estimates and will supplant agriculture in additional areas. This appendix does not use the geographic location detail provided in this analysis. The total acreages by crop type presented here are consistent with the total acreage by basin and county in the GIS analysis.

The information used directly to develop the demand estimates includes:

- Irrigated land use by county or sub-county area.
- Land use details (such as crop type) consistent with those used in water supply plans.

However, some lands currently used for citrus will be removed from agricultural use to become part of the Caloosahatchee (C-43) West Reservoir Project, one of the District's Acceler8 projects. Therefore, future irrigated citrus acreage has already been adjusted for this site-specific loss.

Estimates and Projections of Water Use Factors

Public Water Supply and Self-Supply Demands

For public water supply and self-supply demands, the finished water demands per capita for each utility are based on historical data and held constant into the future.

Per capita water use rates in 2000 for each utility were calculated by dividing finished water demands by the permanent resident population served by public water supply utilities. These per capita rates include: total use (incorporating use by seasonal residents and tourists); commercial and industrial utility supplied use; losses incurred in water delivery; and, use by permanent residents. Some utilities use a planned level of service, which is different from the 2000 estimate. For those utilities, the planned level of service, finished water demand per capita estimates were used.

Domestic Self-Supply per capita rates were based on the average Public Water Supply per capita for the county. For Public Water Supply and Domestic Self-Supply use, 1-in-10 year demand conditions are represented by a use that is 6 percent higher than the average demands.

To determine the gross demands, information regarding the sources and efficiency factors are needed. Conventional treatment processes for freshwater sources generally show insignificant differences between raw water withdrawals and finished water demands. On the other hand, for nanofiltration of fresh water, finished water production is generally 85 percent to 90 percent of raw water withdrawals. For reverse osmosis treatment of brackish water, freshwater production is generally about 75 percent to 80 percent of raw water withdrawals. Aquifer storage and recovery (ASR) systems generally recover about 75 percent of water placed into storage. Reuse of reclaimed water substitutes for water resource withdrawals that would otherwise be required by irrigators, some of whom may have alternatively used potable water. These factors are typical for applications in determining water withdrawal demands; however, when specific information was available as to the expected factor for a particular utility or project, this information was used.

Irrigation Demands

The Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) Model was used to estimate net irrigation demands for agricultural and recreational uses. Irrigation requirements were calculated for average and 1-in-10 year drought demands. To estimate agricultural and recreational irrigation demands, the 2000 and projected irrigated acreages were evaluated using 36 years of rainfall and potential evapotranspiration climatic data from appropriate meteorological stations. The analyses also considered growing seasons, soil types, irrigation methods and strategies.

Agricultural 1-in-10 year drought demands are higher than demands under average conditions, with the difference depending somewhat on soil and crop type. Recreational use has similar differences between average and drought demand estimates.

Irrigation application efficiencies reflect the ability of each type of irrigation system to place water into the root zone of the crop, directly meeting the needs of farmers. The result of applying the efficiencies to the net irrigation demand estimates provides estimates of gross irrigation demands, which are typically the withdrawal demands (demands on the water resource). Efficiencies for irrigation systems are typically 85 percent for low-volume systems, 75 percent for overhead sprinkler systems, 50 percent for flood systems and 35 percent for sprinkler systems on containerized nurseries.

DEMAND ESTIMATES AND PROJECTIONS BY CATEGORY OF WATER USE

(1 & 2) Public Water Supply and Domestic Self-Supply Demands

Public Water Supply and Domestic Self-Supply demand estimates and projections were developed from 2000 through 2025 in five-year increments. The Domestic Self-Supply category includes small public supply systems with projected demands of less than 0.1 million gallons per day (MGD), as well as residents who supply their own indoor domestic water needs. Water demands were forecast by multiplying population projections by per capita finished water demand use rates.

The finished water demands (net demands) are the demands of each utility's customers, which include permanent residents, seasonal residents, tourists, commercial, government and industrial users. The concept of customer demands as applied to public water suppliers is essentially equivalent to finished water leaving the water treatment plants. While utility finished water production includes unaccounted for water, as well as water whose use is eventually metered, the finished water production is still a good measure of utility customer demands. This is because a significant portion of the unaccounted for water is used, but simply is unmetered. The rest of the water, while not

ultimately used by customers, is limited through the consumptive use permitting (CUP) process.

In some cases, the finished water demands met by each utility are not significantly different from the raw water withdrawals, but the differences are becoming more important and many of the differences arise from the decisions made regarding source and treatment methods. The finished water demands of any utility's customers do not include water used in treatment processes, the effects of ASR systems, or the effects of bulk sales and purchases. However, in order to produce the finished water provided to utility customers, there is a larger water withdrawal demand, reflecting what is withdrawn from the water resource, including all of the supply necessary to overcome process inefficiencies and bulk deliveries.

Projection Methodology

The basic finished water projection methodology for the Public Water Supply and Domestic Self-Supply users was to estimate populations served by each utility and apply a per capita consumption based on finished water demands per capita for each user. The raw water withdrawals are projected based on the finished water demand projections and the source and treatment methods capacities identified through the projects in Chapter 7 and the expected efficiencies and utilization of those capacities.

Projection Results

Table 1 shows the projected Public Water Supply population by planning sub-area. **Table 2** provides finished water demands under average conditions by utility, while **Table 3** provides the finished water needs for 1-in-10 year drought demands. In the same manner, **Table 4** provides estimated raw water withdrawals under average conditions, while **Table 5** provides raw water withdrawals under 1-in-10 year drought conditions.

Table 1. Public Water Supply and Domestic Self-Supply Projections of Population Served by Utility.

Utility	2000	2005	2010	2015	2020	2025
Collier County						
Ave Maria Utility	0	5,608	11,208	17,142	23,507	30,200
Collier County Utilities	113,102	155,739	198,311	243,426	291,824	342,711
Everglades City	1,173	1,367	1,561	1,767	1,987	2,219
FGUA (Golden Gate)	12,677	14,001	15,322	16,723	18,226	19,805
Immokalee	18,164	22,572	26,973	31,637	36,640	41,901
Marco Island	15,333	16,121	16,908	17,741	18,636	19,576
Naples	52,411	56,722	61,026	65,587	70,480	75,625
Self-Supplied	38,517	45,471	52,414	59,772	67,666	75,965
Collier County Total	251,377	317,601	383,723	453,795	528,966	608,002
Glades County						
Glades Self-Supplied	3,020	3,127	3,414	3,612	3,777	3,942
Moore Haven	3,052	3,156	3,435	3,627	3,787	3,947
Glades County Total	6,072	6,283	6,849	7,239	7,564	7,889
Hendry County						
Clewiston	14,928	15,881	17,403	18,677	19,916	20,949
Future Western Hendry County	0	820	2,130	3,225	4,291	5,179
Hendry County Correctional	1,267	1,362	1,514	1,640	1,763	1,865
Hendry Self-Supplied	10,395	10,400	10,408	10,416	10,422	10,428
LaBelle	4,641	5,279	6,298	7,150	7,979	8,671
Port LaBelle	3,096	3,355	3,768	4,113	4,450	4,729
Hendry County Total	34,327	37,097	41,521	45,221	48,821	51,821
Lee County						
Boca Grande Supplied	0	919	1,919	2,788	3,596	4,318
Bonita Springs Utilities	34,415	45,446	57,287	67,534	77,067	85,850
Cape Coral, City of	61,650	104,118	149,844	189,739	226,898	260,035
Fort Myers, City of	48,314	56,287	64,830	72,301	79,260	85,465
Greater Pine Island W/A	9,064	12,024	15,202	17,978	20,564	22,870
Island Water Association	6,522	7,751	8,071	8,300	8,423	8,547
Lee County Utilities	176,681	201,286	227,637	250,687	272,157	291,302
Lehigh Acres (FGUA)	18,850	29,803	41,587	51,873	61,453	69,996
Self-Supplied	85,392	83,764	82,024	80,500	79,081	77,816
Lee County Total	440,888	541,398	648,400	741,700	828,499	906,199
Charlotte County						
Charlotte County Self-Supplied	5,438	6,163	6,865	7,525	8,132	8,673
Charlotte County Total	5,438	6,163	6,865	7,525	8,132	8,673
LWC Planning Area Total	738,102	908,542	1,087,358	1,255,480	1,421,982	1,582,584

Table 2. Public Water Supply and Domestic Self-Supply Finished Water Demand Projections by Utility (Average Demands).

Utility	2000	2005	2010	2015	2020	2025
Collier County						
Ave Maria Utility	0.00	0.62	1.23	1.89	2.59	3.32
Collier County Utilities	22.28	29.48	36.69	45.03	53.99	63.40
Everglades City	0.37	0.43	0.49	0.56	0.63	0.70
FGUA (Golden Gate)	1.33	1.47	1.61	1.75	1.91	2.08
Immokalee	2.60	3.23	3.86	4.53	5.24	6.00
Marco Island	5.23	6.60	7.96	8.35	8.77	9.21
Naples	19.43	19.63	19.83	21.32	22.91	24.58
Self-Supplied	8.90	10.50	12.11	13.81	15.63	17.55
Collier County Total	60.14	71.96	83.78	97.23	111.67	126.84
Glades County						
Glades Self-Supplied	0.42	0.43	0.47	0.50	0.53	0.55
Moore Haven	0.40	0.41	0.45	0.48	0.50	0.52
Glades County Total	0.82	0.85	0.92	0.98	1.02	1.07
Hendry County						
Clewiston	3.40	3.03	2.00	2.15	2.29	2.41
Future Western Hendry County	0.00	0.11	0.28	0.42	0.56	0.67
Hendry County Correctional	0.22	0.23	0.26	0.28	0.30	0.32
Hendry Self-Supplied	1.40	1.40	1.40	1.40	1.40	1.40
LaBelle	0.63	0.71	0.85	0.97	1.08	1.17
Port LaBelle	0.24	0.26	0.29	0.32	0.34	0.37
Hendry County Total	5.88	5.74	5.08	5.54	5.98	6.34
Lee County						
Boca Grande Supplied	0.00	0.12	0.26	0.38	0.48	0.58
Bonita Springs	5.90	7.79	9.82	11.58	13.21	14.72
Cape Coral	8.31	14.03	20.20	25.58	30.58	35.05
FGUA (Lehigh)	1.58	3.01	4.20	5.24	6.21	7.07
Fort Myers	6.76	7.88	9.07	10.12	11.09	11.96
Greater Pine Island	1.11	1.47	1.86	2.20	2.52	2.80
Island Water	3.21	3.82	3.97	4.09	4.15	4.21
Lee County Utilities	20.83	23.73	26.84	29.56	32.09	34.34
Lee County Self-Supplied	11.49	11.27	11.04	10.83	10.64	10.47
Lee County Total	59.19	73.12	87.26	99.56	110.97	121.20
Charlotte County						
Charlotte County Self-Supplied	0.71	0.80	0.89	0.98	1.06	1.13
Charlotte County Total	0.71	0.80	0.89	0.98	1.06	1.13
LWC Planning Area Total	126.74	152.47	177.93	204.29	230.70	256.58

Table 3. Public Water Supply and Domestic Self-Supply Finished Water Demand Projections by Utility (1-in-10 Year Drought Demands).

Utility	2000	2005	2010	2015	2020	2025
Collier County						
Ave Maria Utility	0.00	0.66	1.30	2.00	2.75	3.52
Collier County Utilities	23.62	31.24	38.89	47.73	57.23	67.20
Everglades City	0.39	0.46	0.52	0.59	0.67	0.74
FGUA (Golden Gate)	1.41	1.56	1.71	1.86	2.02	2.20
Immokalee	2.76	3.42	4.09	4.80	5.55	6.36
Marco Island	7.65	8.05	8.44	8.85	9.30	9.76
Naples	20.60	20.81	21.02	22.60	24.28	26.05
Self-Supplied	9.43	11.13	12.84	14.64	16.57	18.60
Collier County Total	65.86	77.31	88.81	103.07	118.37	134.43
Glades County						
Glades Self-Supplied	0.45	0.46	0.50	0.53	0.56	0.58
Moore Haven	0.42	0.44	0.48	0.50	0.53	0.55
Glades County Total	0.87	0.90	0.98	1.04	1.08	1.13
Hendry County						
Clewiston	3.60	3.21	2.12	2.28	2.43	2.55
Future Western Hendry County	0.00	0.11	0.29	0.44	0.59	0.71
Hendry County Correctional	0.23	0.25	0.27	0.30	0.32	0.34
Hendry Self-Supplied	1.48	1.48	1.49	1.49	1.49	1.49
LaBelle	0.67	0.76	0.90	1.03	1.14	1.24
Port LaBelle	0.25	0.28	0.31	0.34	0.37	0.39
Hendry County Total	6.24	6.09	5.39	5.87	6.34	6.72
Lee County						
Boca Grande Supplied	0.00	0.13	0.27	0.40	0.51	0.62
Bonita Springs	6.25	8.26	10.41	12.27	14.00	15.60
Cape Coral	8.81	14.88	21.41	27.11	32.42	37.15
FGUA (Lehigh)	1.67	3.19	4.45	5.55	6.58	7.49
Fort Myers	7.17	8.35	9.62	10.72	11.76	12.68
Greater Pine Island	1.18	1.56	1.97	2.33	2.67	2.97
Island Water	3.40	4.04	4.21	4.33	4.39	4.46
Lee County Utilities	22.08	25.15	28.45	31.33	34.01	36.40
Lee County Self-Supplied	12.18	11.95	11.70	11.48	11.28	11.10
Lee County Total	62.74	77.51	92.49	105.53	117.63	128.47
Charlotte County						
Charlotte County Self-Supplied	0.75	0.85	0.95	1.04	1.12	1.20
Charlotte County Total	0.75	0.85	0.95	1.04	1.12	1.20
LWC Planning Area Total	136.46	162.66	188.62	216.55	244.54	271.96

Table 4. Public Water Supply and Domestic Self-Supply Raw Water Withdrawals by Utility
(Average Demands).

Utility	2000	2005	2010 ^b	2015 ^b	2020 ^b	2025 ^b
Collier County						
Ave Maria Utility	0.00	0.70	1.37	2.16	3.04	3.95
Collier County Utilities	24.39	35.30	44.91	56.11	67.98	80.52
Everglades City	0.37	0.43	0.50	0.57	0.64	0.71
FGUA (Golden Gate)	1.36	1.53	1.68	1.83	2.00	2.17
Immokalee	2.65	3.30	4.00	4.84	5.73	6.70
Marco Island	6.14	7.87	9.89	10.83	11.12	11.56
Naples	19.80	20.03	21.80	23.50	25.20	27.10
Collier Self-Supplied	8.90	10.50	12.11	13.81	15.63	17.55
Collier County Total	63.61	79.66	96.26	113.65	131.34	150.26
Glades County						
Glades Self-Supplied	0.42	0.43	0.47	0.50	0.53	0.55
Moore Haven	0.41	0.42	0.46	0.49	0.52	0.53
Glades County Total	0.83	0.85	0.93	0.99	1.05	1.08
Hendry County						
Clewiston ^a	3.46	3.10	2.60	2.80	3.00	3.20
Future Western Hendry County	0.00	0.11	0.35	0.53	0.70	0.84
Hendry County Correctional	0.22	0.23	0.28	0.30	0.32	0.34
Hendry Self-Supplied	1.40	1.40	1.40	1.40	1.40	1.40
LaBelle	0.64	0.71	1.13	1.25	1.38	1.50
Port LaBelle	0.24	0.27	0.32	0.38	0.40	0.44
Hendry County Total	5.96	5.82	6.08	6.66	7.20	7.72
Lee County						
Boca Grande Supplied	0.00	0.15	0.35	0.48	0.60	0.73
Bonita Springs	6.00	8.90	11.40	13.70	15.60	17.30
Cape Coral	12.50	16.70	24.40	30.00	35.60	43.90
FGUA (Lehigh)	1.61	3.06	4.44	5.74	6.96	8.03
Fort Myers	8.45	9.90	11.40	12.60	13.90	15.00
Greater Pine Island	1.74	1.88	2.32	2.75	3.15	3.50
Island Water	4.01	4.78	5.00	5.10	5.20	5.30
Lee County Self-Supplied	11.49	11.27	11.04	10.83	10.64	10.47
Lee County Utilities	21.70	25.92	30.37	33.45	36.31	38.85
Lee County Total	67.50	82.56	100.72	114.65	127.96	143.08
Charlotte County						
Charlotte County Self-Supplied	0.71	0.80	0.89	0.98	1.06	1.13
Charlotte County Total	0.71	0.80	0.89	0.98	1.06	1.13
LWC Planning Area Total	138.61	169.69	204.88	236.93	268.61	303.27

- a. Water through 2008 supplied by US Sugar and includes industrial/commercial component. See Section 3 for additional detail. This also applies to Table 5.
- b. Raw water projections are blank where future supplies were not identified and demand projections showed deficit conditions. The District will propose future supply projects for these areas if none are provided by local governments. This also applies to Table 5.

Table 5. Public Water Supply and Domestic Self-Supply Raw Water Withdrawals by Utility
(1-in-10 Year Drought Demands).

Utility	2000	2005	2010 ^b	2015 ^b	2020 ^b	2025 ^b
Collier County						
Ave Maria Utility	0.00	0.74	1.45	2.29	3.22	4.19
Collier County Utilities	25.85	37.42	47.60	59.48	72.06	85.35
Everglades City	0.39	0.46	0.53	0.60	0.68	0.75
FGUA (Golden Gate)	1.44	1.62	1.78	1.94	2.12	2.30
Immokalee	2.81	3.50	4.24	5.13	6.07	7.10
Marco Island	6.51	8.34	10.48	11.48	11.79	12.25
Naples	20.99	21.23	23.11	24.91	26.71	28.73
Collier Self-Supplied	9.43	11.13	12.84	14.64	16.57	18.60
Collier County Total	67.43	84.44	102.04	120.47	139.22	159.28
Glades County						
Glades Self-Supplied	0.45	0.46	0.50	0.53	0.56	0.58
Moore Haven	0.43	0.45	0.49	0.52	0.55	0.56
Glades County Total	0.88	0.90	0.99	1.05	1.11	1.14
Hendry County						
Clewiston ^a	3.67	3.29	2.76	2.97	3.18	3.39
Future Western Hendry County	0.00	0.12	0.37	0.56	0.74	0.89
Hendry County Correctional	0.23	0.24	0.30	0.32	0.34	0.36
Hendry Self-Supplied	1.48	1.48	1.48	1.48	1.48	1.48
LaBelle	0.68	0.75	1.20	1.33	1.46	1.59
Port LaBelle	0.25	0.29	0.34	0.40	0.42	0.47
Hendry County Total	6.32	6.17	6.44	7.06	7.63	8.18
Lee County						
Boca Grande Supplied	0.00	0.16	0.37	0.51	0.64	0.77
Bonita Springs	6.36	9.43	12.08	14.52	16.54	18.34
Cape Coral	13.25	17.70	25.86	31.80	37.74	46.53
FGUA (Lehigh)	1.71	3.24	4.71	6.08	7.38	8.51
Fort Myers	8.96	10.49	12.08	13.36	14.73	15.90
Greater Pine Island	1.84	1.99	2.46	2.92	3.34	3.71
Island Water	4.25	5.07	5.30	5.41	5.51	5.62
Lee County Self-Supplied	12.18	11.95	11.70	11.48	11.28	11.10
Lee County Utilities	23.00	27.48	32.19	35.46	38.49	41.18
Lee County Total	71.55	87.51	106.76	121.53	135.64	151.66
Charlotte County						
Charlotte County Self-Supplied	0.75	0.85	0.94	1.04	1.12	1.20
Charlotte County Total	0.75	0.85	0.94	1.04	1.12	1.20
LWC Planning Area Total	146.93	179.87	217.17	251.15	284.73	321.47

a. Water through 2008 supplied by US Sugar and includes industrial/commercial component. See Section 3 for additional detail. This also applies to Table 5.

b. Raw water projections are blank where future supplies were not identified and demand projections showed deficit conditions. The District will propose future supply projects for these areas if none are provided by local governments. This also applies to Table 5.

(3) Commercial and Industrial Self-Supply

This category includes Commercial and Industrial demands not supported by a public utility. Water used for commercial and industrial purposes supplied by utilities is included with other utility demands.

Projection Methodology

These water uses were estimated for 2000 by the U.S. Geological Survey (USGS 2004), which directly contacted the users. In the LWC Planning Area, the largest uses are associated with mining and food processing. Inspection of data for earlier years assembled by the USGS indicates that the levels of use and changes in use are not related to population and general economic development, but they had remained small and changed erratically. For these reasons, the 2000 Commercial and Industrial demands were held constant through 2025. The one exception is that in 2000, U.S. Sugar supplied both its own needs and the Public Water Supply needs of the City of Clewiston and the use was classified as Public Water Supply. This will continue through the summer of 2008, at which time U.S. Sugar will supply only its own needs and its use classification will become Commercial and Industrial Self-Supply. A separate utility is being established to serve the City of Clewiston. Commercial and Industrial demands are also not estimated to change between average and 1-in-10 year drought demand conditions and the withdrawal demands are considered to be the same as the user demands.

Projection Results

Table 6 summarizes the Commercial and Industrial Self-Supply demand estimates and projections in the LWC Planning Area.

Table 6. Commercial and Industrial Self-Supply Demand (MGD).

County Area	2000	2005	2010	2015	2020	2025
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	5.8	5.8	5.8	5.8	5.8	5.8
Glades - Southern	4.1	4.1	4.1	4.1	4.1	4.1
Hendry - Western Hendry	0.7	0.7	3.1	3.1	3.1	3.1
Lee	16.0	16.0	16.0	16.0	16.0	16.0
LWC Planning Area Total	26.6	26.6	28.9	28.9	28.9	28.9

(4) Recreational Self-Supply

The Recreational Self-Supply water use category includes self-supplied irrigation demands for golf courses and other large landscaped areas, such as parks and cemeteries.

Projection Methodology

Landscape and recreational uses were identified as a specific land use in the previously described GIS land use analysis. These uses have a significant impact on urban water use and reclaimed water use; therefore, patterns of golf course development in urbanized areas were thoroughly evaluated. A database of more than 160 golf courses was compiled for southwestern Florida, and these golf courses were correlated to existing water-use permits. The best estimate is that the irrigated area of golf courses will grow from 18,500 acres to 28,000 acres by about 2030, with an average of 120 irrigated acres per 18-hole course. Using existing patterns of urban development and the locations of water-use permits, both existing and proposed (likely future) locations for about 80 new golf courses were mapped.

Recreational irrigation demand estimates during average and 1-in-10 year drought conditions were made using the AFSIRS Model. The irrigation requirements were calculated similarly to other irrigation requirements, using a representative irrigation system/rainfall station/soil type combinations for each county.

Projection Results

Recreational Self-Supply acreage projections are shown in **Table 7**. These acreages include the golf course acreage discussed above and estimated acreage of other large landscaped areas. The projected net irrigation (user) demands are shown in **Table 8** for both average conditions and for 1-in-10 year drought conditions. Gross irrigation demands (withdrawal demands) for average and for 1-in-10 year drought conditions are shown in **Table 9**. At present, and in the future, a substantial portion of the Recreational Self-Supply demands is or will be met by the reuse of reclaimed water. This will not only reduce withdrawal demands on the water resources, but also provide additional recharge of the Surficial Aquifer.

Table 7. Recreational Self-Supply Acreage in the LWC Planning Area.

Sub-County Area	2000	2005	2010	2015	2020	2025
Glades - Southern	322	421	521	620	720	819
Hendry - Western Hendry	499	584	669	755	840	925
Lee	11,193	11,594	11,995	12,396	12,797	13,199
Charlotte - SFWMD Portion	1	1	1	1	1	1
Collier	11,392	11,964	12,536	13,108	13,680	14,252
Total LWC Planning Area	23,406	24,564	25,723	26,881	28,039	29,197

Table 8. Net Irrigation Demands for Recreational Self-Supply Users in the LWC Planning Area.

Sub-County Area	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	15.9	16.7	17.5	18.3	19.1	19.9
Glades - Southern	0.3	0.5	0.6	0.7	0.8	0.9
Hendry - Western Hendry	0.8	1.0	1.1	1.3	1.4	1.5
Lee	20.6	21.3	22.0	22.8	23.5	24.2
LWC Planning Area Total	37.7	39.5	41.3	43.0	44.8	46.6
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	19.2	20.2	21.2	22.1	23.1	24.1
Glades - Southern	0.5	0.6	0.8	0.9	1.1	1.2
Hendry - Western Hendry	1.0	1.2	1.3	1.5	1.7	1.8
Lee	24.0	24.8	25.7	26.6	27.4	28.3
LWC Planning Area Total	44.7	46.8	49.0	51.1	53.3	55.4

Table 9. Gross Irrigation Demands for Recreational Self-Supply Users in the LWC Planning Area.

Sub-County Area	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	21.2	22.3	23.4	24.4	25.5	26.6
Glades - Southern	0.5	0.6	0.7	0.9	1.0	1.2
Hendry - Western Hendry	1.1	1.3	1.5	1.7	1.9	2.1
Lee	27.4	28.4	29.4	30.4	31.3	32.3
LWC Planning Area Total	50.2	52.6	55.0	57.4	59.8	62.2
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	25.6	26.9	28.2	29.5	30.8	32.1
Glades - Southern	0.7	0.9	1.1	1.3	1.5	1.7
Hendry - Western Hendry	1.3	1.6	1.8	2.0	2.2	2.5
Lee	32.0	33.1	34.3	35.4	36.6	37.7
LWC Planning Area Total	59.6	62.5	65.3	68.2	71.0	73.9

(5) Thermoelectric Power Generation Self-Supply

The major use of water at thermoelectric power plants is for cooling purposes. In the LWC Planning Area, and in most of south Florida, this use has until recently been met by flow-through cooling using tidal and not fresh or brackish aquifer water. This is the case for FPL's Fort Myers plant, which uses water from the tidal Caloosahatchee for cooling. The other power plant uses are boiler make-up water and ancillary uses, such as domestic type use by employees. As an example, for these uses FPL's Fort Myers Plant relies on water from the Sandstone Aquifer. In the 2000 LWC Plan, the estimated Thermoelectric Power Generation Self-Supply freshwater demands for 1995 were only 0.8 MGD. The USGS estimate of these demands in 2000 was 0.2 MGD. This pattern is changing as a significant percentage of new power plants are expected to use evaporative cooling towers and fresh water for cooling.

Projection Methodology

Projections were made in conjunction with Florida Power & Light (FPL), the major electric supplier in south Florida, and reflect growth expectations in power demands; strategies for obtaining the electricity to meet those demands (which leads to estimation of power plant construction); types and locations of power plants; types of cooling facilities; and, ability to achieve efficiencies in water use. Most of these factors are subject to considerable uncertainty, and the efficacy of meeting demands from freshwater sources vs. saltwater sources needs further consideration, as does the cost-effectiveness of design and operational strategies that could significantly reduce water use below the amounts estimated.

The estimates presented in **Table 10** include only the generating capacity expected to be located in the LWC Planning Area. Significant additional capacity has been proposed for areas within the Lake Okeechobee Service Area, which are outside the LWC Planning Area. Those demands are included in the 2005–2006 KB, LWC and UEC plan updates. Thermoelectric Power Generation demands are estimated to be the same for average and 1-in-10 year drought conditions.

Projection Results

Projections of fresh and brackish water for Thermoelectric Power Demands are presented in **Table 10**. These projections are the same for average and 1-in-10 year drought demands and for user/customer demands and water withdrawal demands.

Use of the Sandstone Aquifer at the Ft. Myers Plant at quantities presently permitted accounts for the use in Lee County. The remaining projections account for five planned plants, which will use cooling towers as the heat rejection method. None of these plants has been sited other than to identify their general location within the LWC Planning Area. The efficacy and availability of water sources will be a consideration in the site selection and the primary source of water for the plants will be alternative water supplies, including captured excess stormwater, Floridan Aquifer water and reclaimed water.

Table 10. Projected Thermoelectric Power Demands (MGD).

Sub-County	2000	2005	2010	2015	2020	2025
Lee County	0.2	0.5	0.5	0.5	0.5	0.5
LWC Area (location unspecified)	0.0	0.0	7.6	51.2	58.8	66.4
Total	0.2	0.5	8.1	51.7	59.3	66.9

(6) Agricultural Self-Supply

Agricultural water use includes irrigated commercially grown crop categories as developed by the Water Demand Projection Subcommittee, composed of representatives from Florida's five water management districts. These categories are: 1) citrus, 2) other fruits and nuts, 3) vegetables, melons and berries, 4) field crops, 5) sod, 6) greenhouse/nursery, 7) pasture and 8) miscellaneous.

Projection Methodology

The agricultural demand assessment uses acreage estimates developed as part of the overall GIS land use analysis. To estimate the demands associated with the acreage for each crop, information from District Water Supply Assessments and previous hydrologic modeling efforts was used to identify soil types, growing seasons, irrigation system types and irrigation system efficiencies.

The actual Agricultural Self-Supply demand calculations for this LWC Plan Update were made using the AFSIRS Model. This is a change from the 2000 LWC Plan, which used a modified Blaney-Criddle Model to estimate supplemental requirements for irrigation.

The AFSIRS Model calculates both net and gross irrigation requirements. A crop's net irrigation requirement is the amount of water delivered to the root zone of the crop, while gross irrigation requirement includes both the net irrigation requirement and the losses incurred in getting irrigation to the crop's root zone. Irrigation efficiency refers to the average percent of total water applied that is delivered to the plant's root zone. This relationship is expressed as follows:

$$\text{Gross Irrigation Requirement} = \text{Net Irrigation Requirement} / \text{Irrigation Efficiency}$$

Agricultural alternative water supply projects are likely to target changes in the sources and efficiencies of water delivery in order to meet the crop net irrigation demands. For instance, tailwater recovery could capture some of the water not effectively delivered to the root zone, and by recapturing and reusing this water, withdrawals from the water resource could ultimately be reduced.

Average and 1-in-10 year drought irrigation requirements were calculated using the District's AFSIRS Model. Historical weather data from the rainfall station was considered to best represent the crop/county combination used to calculate irrigation requirements.

Projections of irrigation system type and the effect of the corresponding irrigation efficiencies (shown in parentheses) were based on the interpretation of current ratios and trends. There are three basic types of irrigation systems currently used in south Florida crop production. These are seepage (50 percent), sprinkler (75 percent) and low-volume (85 percent) systems.

Available water capacity and depth of soil have a direct effect on effective rainfall. Another factor the AFSIRS Model considered explicitly is on-farm irrigation management strategy, which was combined with soil properties. The AFSIRS Model defines eight "generic" soil types representing the major kinds of soils found in Florida. Runs for each crop for each basin were made using the most appropriate generic soil, as defined by the AFSIRS Model.

Improved pasture is defined by the SFWMD as pasture that has the facilities in place to carry out irrigation. Irrigation of pastureland is believed to be limited and based more on sales opportunities and extreme drought maintenance, and not as part of regular crop management. The water supply planning assumption that improved pasture is not irrigated does not preclude ranchers from acquiring SFWMD consumptive use permits or carrying out pasture irrigation.

Projection Results

Citrus

Overall, citrus acreage in the LWC Planning Area is expected to remain about the same, with modest declines expected in Collier County and increases in Glades County. Water use in the planning area is expected to show very little change through 2025. **Table 11** presents the acreage projections, while **Table 12** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 13** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 11. Citrus Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades – Southern	8,056	9,979	11,902	13,825	15,748	17,671
Hendry - Western Hendry	92,017	91,723	91,430	91,136	90,843	90,549
Lee	16,373	16,276	16,179	16,083	15,986	15,889
Charlotte - SFWMD Portion	10,373	10,373	10,373	10,373	10,373	10,373
Collier	40,638	39,766	38,895	38,023	37,152	36,280
Total LWC Planning Area	167,457	168,118	168,779	169,440	170,101	170,762

Table 12. Net Irrigation Demands for Citrus in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands For Average Conditions (MGD)						
Charlotte - SFWMD Portion	9.5	9.5	9.5	9.5	9.5	9.5
Collier	38.3	37.4	36.6	35.8	35.0	34.2
Glades – Southern	9.7	11.8	13.8	15.6	17.4	19.1
Hendry - Western Hendry	106.4	106.0	105.7	105.3	105.0	104.7
Lee	21.5	21.4	21.3	21.1	21.0	20.9
LWC Planning Area Total	185.4	186.1	186.8	187.4	187.9	188.3
Net Irrigation Demands For 1-in- 10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	13.0	13.0	13.0	13.0	13.0	13.0
Collier	53.6	52.4	51.3	50.1	49.0	47.8
Glades – Southern	13.6	16.7	19.6	22.5	25.2	27.9
Hendry - Western Hendry	141.6	141.2	140.7	140.3	139.8	139.4
Lee	28.9	28.7	28.5	28.4	28.2	28.0
LWC Planning Area Total	250.7	252.0	253.2	254.3	255.3	256.2

Table 13. Gross Irrigation Demands for Citrus in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands For Average Conditions (MGD)						
Charlotte - SFWMD Portion	11.2	11.2	11.2	11.2	11.2	11.2
Collier	53.9	52.7	51.6	50.4	49.3	48.1
Glades – Southern	14.1	16.7	19.0	21.1	22.9	24.6
Hendry - Western Hendry	156.4	155.9	155.4	154.9	154.4	153.9
Lee	31.6	31.4	31.3	31.1	30.9	30.7
LWC Planning Area Total	267.2	267.9	268.4	268.6	268.7	268.5
Gross Irrigation Demands For 1-in- 10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	15.3	15.3	15.3	15.3	15.3	15.3
Collier	75.4	73.8	72.2	70.6	69.0	67.4
Glades – Southern	19.8	23.6	27.1	30.3	33.2	36.0
Hendry - Western Hendry	208.3	207.6	206.9	206.3	205.6	204.9
Lee	42.5	42.2	42.0	41.7	41.5	41.2
LWC Planning Area Total	361.3	362.5	363.5	364.2	364.6	364.8

Other Fruits and Nuts

The major crops in this category are avocados and mangos. Total acreage of “Other Fruits and Nuts” in the LWC Planning Area is small and concentrated in Lee and Collier counties. Modest declines in acreage are expected due to urbanization pressures. Water use is expected to decline as well. Overall, the acreage and water use declines are small. **Table 14** presents the acreage projections, while **Table 15** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 16** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 14. Acres of Other Fruits and Nuts in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades – Southern	8	8	8	8	8	8
Hendry - Western Hendry	65	63	61	59	57	55
Lee	139	124	109	93	78	63
Charlotte - SFWMD Portion	76	76	76	76	76	76
Collier	194	186	178	171	163	155
Total LWC Planning Area	482	457	432	407	382	357

Table 15. Net Irrigation Demands for Other Fruits and Nuts in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.1	0.1	0.1	0.1	0.1	0.1
Collier	0.2	0.1	0.1	0.1	0.1	0.1
Glades – Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.1	0.1	0.1	0.1	0.1	0.1
Lee	0.2	0.2	0.1	0.1	0.1	0.1
LWC Planning Area Total	0.5	0.5	0.4	0.4	0.4	0.3
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.1	0.1	0.1	0.1	0.1	0.1
Collier	0.2	0.2	0.2	0.2	0.2	0.2
Glades – Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.1	0.1	0.1	0.1	0.1	0.1
Lee	0.2	0.2	0.2	0.2	0.1	0.1
LWC Planning Area Total	0.7	0.6	0.6	0.6	0.5	0.5

Table 16. Gross Irrigation Demands for Other Fruits and Nuts in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.1	0.1	0.1	0.1	0.1	0.1
Collier	0.2	0.2	0.2	0.2	0.1	0.1
Glades – Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.1	0.1	0.1	0.1	0.1	0.1
Lee	0.3	0.2	0.2	0.2	0.2	0.1
LWC Planning Area Total	0.7	0.6	0.6	0.5	0.5	0.5
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.1	0.1	0.1	0.1	0.1	0.1
Collier	0.3	0.3	0.2	0.2	0.2	0.2
Glades – Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.1	0.1	0.1	0.1	0.1	0.1
Lee	0.4	0.3	0.3	0.2	0.2	0.2
LWC Planning Area Total	0.9	0.8	0.8	0.7	0.7	0.6

Vegetables, Melons and Berries

The chief crops in this category include tomatoes, peppers, eggplant, squash, watermelons and tropical vegetables. Vegetable acreage through the projection period is expected to increase significantly in Hendry County and show some decline in most other sub areas of the LWC Planning Area. Water use changes parallel the changes in acreage.

Table 17 presents the acreage projections, while **Table 18** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 19** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 17. Vegetables, Melons and Berries Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades – Southern	1,699	1,769	1,839	1,908	1,978	2,048
Hendry - Western Hendry	9,485	10,842	12,198	13,555	14,911	16,268
Lee	15,793	15,318	14,843	14,367	13,892	13,417
Charlotte - SFWMD Portion	6,239	5,830	5,421	5,013	4,604	4,195
Collier	43,676	42,315	40,953	39,592	38,230	36,869
Total LWC Planning Area	76,892	76,073	75,254	74,435	73,616	72,797

Table 18. Net Irrigation Demands for Vegetables, Melons and Berries in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	7.5	7.0	6.5	6.0	5.5	5.0
Collier	48.6	47.1	45.6	44.1	42.6	41.1
Glades – Southern	1.4	1.4	1.5	1.6	1.6	1.7
Hendry - Western Hendry	11.4	13.0	14.6	16.2	17.9	19.5
Lee	21.5	20.8	20.2	19.5	18.9	18.3
LWC Planning Area Total	90.3	89.4	88.4	87.4	86.5	85.5
Net Irrigation Demands for 1-in- 10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	9.4	8.8	8.2	7.6	7.0	6.3
Collier	61.0	59.1	57.2	55.3	53.4	51.5
Glades – Southern	2.0	2.1	2.2	2.2	2.3	2.4
Hendry - Western Hendry	14.3	16.4	18.4	20.5	22.5	24.6
Lee	26.4	25.6	24.8	24.0	23.2	22.4
LWC Planning Area Total	113.1	111.9	110.7	109.6	108.4	107.2

Table 19. Gross Irrigation Demands for Vegetables, Melons and Berries in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	14.9	14.0	13.0	12.0	11.0	10.0
Collier	93.5	90.6	87.7	84.8	81.9	79.0
Glades – Southern	1.9	1.9	2.0	2.1	2.2	2.2
Hendry - Western Hendry	22.7	26.0	29.2	32.5	35.7	39.0
Lee	41.3	40.1	38.8	37.6	36.3	35.1
LWC Planning Area Total	174.4	172.5	170.7	168.9	167.1	165.3
Gross Irrigation Demands for 1-in- 10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	18.8	17.6	16.4	15.1	13.9	12.7
Collier	117.3	113.6	110.0	106.3	102.6	99.0
Glades – Southern	2.7	2.8	2.9	3.0	3.1	3.2
Hendry - Western Hendry	28.6	32.7	36.8	40.9	45.0	49.1
Lee	50.7	49.2	47.7	46.2	44.6	43.1
LWC Planning Area Total	218.2	215.9	213.7	211.5	209.3	207.1

Field Crops - Sugarcane

Sugarcane is the principal field crop grown within the LWC Planning Area. Other field crops grown include rice, corn and soybeans. Because of its dominance in terms of acreage, sugarcane and “other field crops” are discussed separately.

Sugarcane is initially propagated by planting stalk cuttings. The first harvest takes place approximately 13 months after planting. Sugar production per unit of land surface declines gradually with each additional rotation, and in approximately four years, (one planting and three ratoons) the increased yields associated with replanting outweigh the costs. Because land may lay fallow for several months between crop rotation cycles, approximately 20 percent of the land associated with sugarcane production will not be harvested in any given year.

While the largest percentage of sugarcane acreage in south Florida is grown in the muck soils of the Everglades Agricultural Area (EAA), significant acreage occurs on the “sand lands” in portions of Hendry and Glades counties in the LWC Planning Area. Through the projection period, sugarcane acreage in Glades County is expected to grow by about 10,000 acres, while acreage in Hendry County is expected to remain relatively constant in the mid-60,000 acre-range. Water use per acre within each basin also remains the same, and therefore, water use parallels the changes in acreage.

Table 20 presents the acreage projections, while **Table 21** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 22**

shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 20. Sugarcane Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades - Southern	29,115	31,037	32,959	34,882	36,804	38,726
Hendry - Western Hendry	63,364	64,105	64,846	65,587	66,328	67,069
Lee	0	0	0	0	0	0
Charlotte - SFWMD Portion	0	0	0	0	0	0
Collier	0	0	0	0	0	0
Total LWC Planning Area	92,479	95,142	97,805	100,469	103,132	105,795

Table 21. Net Irrigation Demands for Sugarcane in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	0.0	0.0	0.0	0.0	0.0	0.0
Glades - Southern	37.2	39.7	42.2	44.6	47.1	49.5
Hendry - Western Hendry	76.4	77.2	78.1	79.0	79.9	80.8
Lee	0.0	0.0	0.0	0.0	0.0	0.0
LWC Planning Area Total	113.6	117.0	120.3	123.7	127.0	130.4
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	0.0	0.0	0.0	0.0	0.0	0.0
Glades - Southern	49.8	53.1	56.4	59.7	63.0	66.3
Hendry - Western Hendry	103.2	104.4	105.6	106.8	108.0	109.3
Lee	0.0	0.0	0.0	0.0	0.0	0.0
LWC Planning Area Total	153.0	157.5	162.0	166.5	171.0	175.5

Table 22. Gross Irrigation Demands for Sugarcane in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	0.0	0.0	0.0	0.0	0.0	0.0
Glades - Southern	74.5	79.4	84.3	89.3	94.2	99.1
Hendry - Western Hendry	152.7	154.5	156.3	158.1	159.9	161.6
Lee	0.0	0.0	0.0	0.0	0.0	0.0
LWC Planning Area Total	227.2	233.9	240.6	247.3	254.0	260.7
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.0	0.0	0.0	0.0	0.0	0.0
Collier	0.0	0.0	0.0	0.0	0.0	0.0
Glades - Southern	99.6	106.2	112.8	119.4	125.9	132.5
Hendry - Western Hendry	206.4	208.9	211.3	213.7	216.1	218.5
Lee	0.0	0.0	0.0	0.0	0.0	0.0
LWC Planning Area Total	306.1	315.1	324.0	333.0	342.0	351.0

Field Crops – Other Field Crops

Other field crops in the LWC Planning Area include primarily rice, seed corn and soybeans. Declines in acreage and water use are projected. **Table 23** presents the acreage projections, while **Table 24** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 25** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 23. Other Field Crops Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades - Southern	1,193	1,132	1,071	1,011	950	889
Hendry - Western Hendry	218	204	190	175	161	147
Lee	1,172	1,094	1,017	939	862	784
Charlotte - SFWMD Portion	1,055	939	822	706	589	473
Collier	222	222	222	222	222	222
Total LWC Planning Area	3,860	3,591	3,322	3,053	2,784	2,515

Table 24. Net Irrigation Demands for Other Field Crops in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	1.3	1.2	1.0	0.9	0.7	0.6
Collier	0.2	0.2	0.2	0.2	0.2	0.2
Glades - Southern	1.6	1.5	1.5	1.4	1.3	1.2
Hendry - Western Hendry	0.3	0.3	0.2	0.2	0.2	0.2
Lee	1.7	1.6	1.5	1.3	1.2	1.1
LWC Planning Area Total	5.1	4.7	4.4	4.0	3.6	3.3
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	1.7	1.5	1.3	1.1	0.9	0.7
Collier	0.3	0.3	0.3	0.3	0.3	0.3
Glades - Southern	2.1	2.0	1.9	1.8	1.7	1.6
Hendry - Western Hendry	0.3	0.3	0.3	0.3	0.3	0.2
Lee	2.1	1.9	1.8	1.6	1.5	1.4
LWC Planning Area Total	6.4	6.0	5.5	5.1	4.6	4.2

Table 25. Gross Irrigation Demands for Other Field Crops in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	2.6	2.3	2.0	1.7	1.5	1.2
Collier	0.3	0.3	0.3	0.3	0.3	0.3
Glades - Southern	3.2	3.1	2.9	2.7	2.6	2.4
Hendry - Western Hendry	0.5	0.5	0.5	0.4	0.4	0.4
Lee	3.3	3.1	2.9	2.7	2.5	2.2
LWC Planning Area Total	10.0	9.3	8.6	7.9	7.2	6.5
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	3.3	2.9	2.6	2.2	1.9	1.5
Collier	0.4	0.4	0.4	0.4	0.4	0.4
Glades - Southern	4.2	4.0	3.7	3.5	3.3	3.1
Hendry - Western Hendry	0.7	0.6	0.6	0.6	0.5	0.5
Lee	4.1	3.8	3.6	3.3	3.0	2.8
LWC Planning Area Total	12.7	11.8	10.9	10.0	9.1	8.2

Sod Production

Sod projections presented here refer to irrigated sod. Some sod may be harvested from pastureland, which is not irrigated. Pasture supporting cow-calf operations is typically not irrigated because it is not economical. Some pasture in the coastal areas may

include horse farms, ranchettes, etc., which may be irrigated and may have been included with the sod production.

Significant growth in sod production and associated water use is expected in Hendry and Charlotte counties. This production will help meet the demands for sod for urban landscaping. Irrigation requirements are similar to those for recreational uses and on a per acre basis do not change over the projection period.

Table 26 presents the acreage projections, while **Table 27** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 28** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions

Table 26. Sod Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades - Southern	9	9	9	9	9	9
Hendry - Western Hendry	475	1,195	1,915	2,635	3,355	4,075
Lee	665	567	469	372	274	176
Charlotte - SFWMD Portion	296	890	1,485	2,079	2,674	3,268
Collier	115	113	110	108	105	103
Lower West Coast Total	1,560	2,774	3,988	5,203	6,417	7,631

Table 27. Net Irrigation Demands for Sod in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.5	1.4	2.3	3.2	4.1	5.0
Collier	0.2	0.2	0.2	0.2	0.2	0.2
Glades - Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.7	1.8	2.9	4.0	5.1	6.2
Lee	1.0	0.9	0.7	0.6	0.4	0.3
LWC Planning Area Total	2.4	4.2	6.1	7.9	9.8	11.6
Net Irrigation Demands for 1-in- 10 Conditions (MGD)						
Charlotte - SFWMD Portion	0.6	1.7	2.9	4.1	5.3	6.4
Collier	0.2	0.2	0.2	0.2	0.2	0.2
Glades - Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	0.9	2.3	3.8	5.2	6.6	8.0
Lee	1.3	1.1	0.9	0.7	0.5	0.3
LWC Planning Area Total	3.1	5.4	7.8	10.2	12.6	15.0

Table 28. Gross Irrigation Demands for Sod in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.9	2.7	4.5	6.3	8.2	10.0
Collier	0.4	0.3	0.3	0.3	0.3	0.3
Glades - Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	1.4	3.6	5.8	8.0	10.2	12.4
Lee	2.0	1.7	1.4	1.1	0.8	0.5
LWC Planning Area Total	4.8	8.5	12.2	15.9	19.6	23.3
Gross Irrigation Demands for 1-in- 10 Conditions (MGD)						
Charlotte - SFWMD Portion	1.2	3.5	5.8	8.2	10.5	12.8
Collier	0.5	0.4	0.4	0.4	0.4	0.4
Glades - Southern	0.0	0.0	0.0	0.0	0.0	0.0
Hendry - Western Hendry	1.9	4.7	7.5	10.3	13.2	16.0
Lee	2.6	2.2	1.8	1.5	1.1	0.7
LWC Planning Area Total	6.1	10.9	15.7	20.4	25.2	30.0

Greenhouse/Nursery

Estimated greenhouse/nursery acreage and irrigation requirements in the LWC Planning Area decline over the projection period, especially in the more urbanized counties of Lee and Collier.

Table 29 presents the acreage projections, while **Table 30** shows the projected net irrigation demands under average and 1-in-10 year drought conditions. **Table 31** shows the projected gross irrigation demands (water withdrawal demands) under average and 1-in-10 year drought conditions.

Table 29. Greenhouse/Nursery Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades - Southern	60	55	50	46	41	36
Hendry - Western Hendry	144	144	144	144	144	144
Lee	756	725	694	663	632	601
Charlotte - SFWMD Portion	81	81	81	81	81	81
Collier	631	596	561	526	491	456
Total LWC Planning Area	1,672	1,601	1,530	1,460	1,389	1,318

Table 30. Net Irrigation Demands for Greenhouse/Nursery in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.1	0.1	0.1	0.1	0.1	0.1
Collier	1.1	1.0	1.0	0.9	0.8	0.8
Glades - Southern	0.1	0.1	0.1	0.1	0.1	0.1
Hendry - Western Hendry	0.2	0.2	0.2	0.2	0.2	0.2
Lee	1.5	1.5	1.4	1.3	1.3	1.2
LWC Planning Area Total	3.1	2.9	2.8	2.7	2.6	2.4
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.2	0.2	0.2	0.2	0.2	0.2
Collier	1.2	1.2	1.1	1.0	1.0	0.9
Glades - Southern	0.1	0.1	0.1	0.1	0.1	0.1
Hendry - Western Hendry	0.3	0.3	0.3	0.3	0.3	0.3
Lee	1.7	1.7	1.6	1.5	1.5	1.4
LWC Planning Area Total	3.6	3.4	3.3	3.1	3.0	2.8

Table 31. Gross Irrigation Demands for Greenhouse/Nursery in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	0.4	0.4	0.4	0.4	0.4	0.4
Collier	2.1	2.0	1.9	1.7	1.6	1.5
Glades - Southern	0.3	0.3	0.2	0.2	0.2	0.2
Hendry - Western Hendry	0.7	0.7	0.7	0.7	0.7	0.7
Lee	2.1	2.0	1.9	1.8	1.7	1.7
LWC Planning Area Total	5.6	5.4	5.1	4.9	4.7	4.5
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	0.5	0.5	0.5	0.5	0.5	0.5
Collier	2.4	2.3	2.1	2.0	1.9	1.7
Glades - Southern	0.3	0.3	0.3	0.3	0.2	0.2
Hendry - Western Hendry	0.9	0.9	0.9	0.9	0.9	0.9
Lee	2.4	2.3	2.2	2.1	2.0	1.9
LWC Planning Area Total	6.5	6.2	6.0	5.7	5.5	5.2

Improved Pasture

Improved pasture is generally not irrigated and no irrigation demands are estimated since they would only relate to some of the acres some of the time.

Other Agricultural Uses

This plan update does not present estimates for cattle watering or aquaculture, the former because of its small size and the latter because most of the use represents localized flow-through, in which the water returns to the source from which it was taken.

Summary of Agricultural Results

Although estimates and projections for the agricultural subsections have been discussed in terms of crop/use categories, it is also important to summarize the results in terms of total acreage and use by subbasin. The acreage by subbasin is presented in **Table 32**, while total agricultural net irrigation demands are presented **Table 33**. Gross irrigation demands (water withdrawal demands) are presented in **Table 34**.

Table 32. Total Irrigated Agricultural Acreage in the LWC Planning Area.

County	2000	2005	2010	2015	2020	2025
Glades – Southern	40,140	43,989	47,839	51,688	55,538	59,387
Hendry – Western Hendry	165,768	168,276	170,784	173,291	175,799	178,307
Lee	34,898	34,104	33,311	32,517	31,724	30,930
Charlotte – SFWMD Portion	18,120	18,189	18,258	18,328	18,397	18,466
Collier	85,476	83,198	80,920	78,641	76,363	74,085
Total	344,402	347,757	351,111	354,466	357,820	361,175

Table 33. Net Irrigation Demands for Total Irrigated Agricultural Acreage in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Net irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	18.9	19.2	19.5	19.7	20.0	20.3
Collier	88.5	86.1	83.7	81.3	78.9	76.5
Glades - Southern	50.1	54.6	59.0	63.3	67.5	71.6
Hendry - Western Hendry	195.4	198.6	201.9	205.1	208.4	211.7
Lee	47.4	46.3	45.2	44.0	42.9	41.8
Total	400.3	404.8	409.2	413.5	417.7	421.8
Net Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	25.0	25.3	25.7	26.1	26.4	26.8
Collier	116.5	113.4	110.2	107.1	104.0	100.9
Glades - Southern	67.7	74.0	80.2	86.3	92.3	98.3
Hendry - Western Hendry	260.8	265.0	269.2	273.4	277.6	281.8
Lee	60.6	59.2	57.9	56.5	55.1	53.7
Total	530.6	536.9	543.2	549.3	555.4	561.4

Table 34. Gross Irrigation Demands for Total Irrigated Agricultural Acreage in the LWC Planning Area.

County/Acreage/Demand	2000	2005	2010	2015	2020	2025
Gross Irrigation Demands for Average Conditions (MGD)						
Charlotte - SFWMD Portion	30.1	30.7	31.2	31.8	32.3	32.9
Collier	150.4	146.2	142.0	137.7	133.5	129.3
Glades - Southern	94.0	101.4	108.5	115.4	122.1	128.5
Hendry - Western Hendry	334.6	341.3	348.0	354.7	361.4	368.1
Lee	80.7	78.6	76.5	74.5	72.4	70.3
Total	689.8	698.1	706.2	714.1	721.7	729.2
Gross Irrigation Demands for 1-in-10 Year Drought Conditions (MGD)						
Charlotte - SFWMD Portion	39.3	40.0	40.7	41.5	42.2	43.0
Collier	196.3	190.8	185.4	180.0	174.5	169.1
Glades - Southern	126.6	136.8	146.8	156.5	165.9	175.0
Hendry - Western Hendry	446.9	455.5	464.1	472.7	481.4	490.0
Lee	102.7	100.1	97.6	95.0	92.4	89.9
Total	911.7	923.3	934.6	945.7	956.4	967.0

TOTAL PLANNING AREA DEMAND AND PLAN COMPARISONS

Total Planning Area Demands

This section summarizes both the total user/customer demands and the water withdrawal demands in the LWC Planning Area. The net demands are the demands that the projects identified in the plan update will be designed to meet. They are presented for both average and 1-in-10 year drought conditions. **Table 35** shows user/customer demands and **Table 36** shows estimated water withdrawal demands from 2000 to 2025 for the LWC Planning Area for average and 1-in-10 year drought demands, respectively.

Table 35. Net Water Demands 2000 through 2025 by Water Use Category in the LWC Planning Area (MGD).

Water Use Category	2000	2005	2010	2015	2020	2025
Net Demands for Average Conditions (MGD)						
Public Water Supply	103.8	128.1	152.0	176.8	201.4	225.5
Domestic Self-Supply	22.9	24.4	25.9	27.5	29.3	31.1
Commercial & Industrial Self-Supply	26.6	26.6	28.9	28.9	28.9	28.9
Recreational Self-Supply	37.7	39.5	41.3	43.0	44.8	46.6
Thermoelectric Power Generation Self-Supply	0.2	0.5	8.1	51.7	59.3	66.9
Agricultural Self-Supply	400.3	404.8	409.2	413.5	417.7	421.8
Total Water Demands	591.5	623.9	665.4	741.4	781.4	820.8
Net Demands for 1-in-10 Year Drought Conditions (MGD)						
Public Water Supply	112.2	134.8	161.1	187.4	213.5	239.0
Domestic Self-Supply	24.3	25.9	27.5	29.2	31.0	33.0
Commercial & Industrial Self-Supply	26.6	26.6	28.9	28.9	28.9	28.9
Recreational Self-Supply	44.7	46.8	49.0	51.1	53.3	55.4
Thermoelectric Power Generation Self-Supply	0.2	0.5	8.1	51.7	59.3	66.9
Agricultural Self-Supply	530.6	536.9	543.2	549.3	555.4	561.4
Total Water Demands	738.6	771.5	817.8	897.6	941.4	984.6

Table 36. Gross Water Demands 2000 through 2025 by Water Use Category in the LWC Planning Area (MGD).

Water Use Category	2000	2005	2010	2015	2020	2025
User/Customer Demands for Average Conditions (MGD)						
Public Water Supply	115.7	145.3	179.0	209.4	239.4	272.2
Domestic Self-Supply	22.9	24.4	25.9	27.5	29.3	31.1
Commercial & Industrial Self-Supply	26.6	26.6	28.9	28.9	28.9	28.9
Recreational Self-Supply	50.2	52.6	55.0	57.4	59.8	62.2
Thermoelectric Power Generation Self-Supply	0.2	0.5	8.1	51.7	59.3	66.9
Agricultural Self-Supply	689.8	698.1	706.2	714.1	721.7	729.2
Total Water Demands	905.4	947.5	1003.1	1089.0	1138.4	1190.5
User/Customer Demands for 1-in-10 Year Drought Conditions (MGD)						
Public Water Supply	122.6	151.3	189.7	222.0	253.7	288.5
Domestic Self-Supply	24.3	25.9	27.5	29.2	31.0	33.0
Commercial & Industrial Self-Supply	26.6	26.6	28.9	28.9	28.9	28.9
Recreational Self-Supply	59.6	62.5	65.3	68.2	71.0	73.9
Thermoelectric Power Generation Self-Supply	0.2	0.5	8.1	51.7	59.3	66.9
Agricultural Self-Supply	911.7	923.3	934.6	945.7	956.4	967.0
Total Water Demands	1145.0	1190.1	1254.1	1345.7	1400.3	1458.2

Changes Compared to the 2000 LWC Plan

There were several changes made to the demand assessment and projection methodology from the 2000 LWC Plan to the 2005–2006 LWC Plan Update. These are summarized as follows:

Census blocks vs. Census block groups: The population analysis conducted in this 2005–2006 LWC Update used census blocks; whereas block groups were used for the 2000 LWC Plan. A Census block is the smallest Census geographic area, normally bounded by streets and other prominent physical features. A Census block has a higher resolution than a group of blocks (Census block group); therefore, use of blocks rather than block groups provide a higher level of precision.

A lower water use threshold for public water supply utilities from 500,000 to 100,000 gallons per day: This had the effect of increasing the number of Public Water Supply utilities analyzed in the 2005–2006 LWC Plan Update.

Supplemental irrigation needs determined use of the AFSIRS Model vs. a modified Blaney-Criddle Model: Both of these models estimate evapotranspiration (ET) in order to derive supplemental irrigation requirements for agricultural crops and outdoor irrigation. However, in south Florida, the Blaney-Criddle Model tends to overestimate ET, which is the driving component of supplemental irrigation. As a result, the Blaney-Criddle Model has the potential to overestimate supplemental irrigation requirements. To address this, District staff began using the AFSIRS Model as the regional water supply plans were updated. The AFSIRS Model yields supplemental irrigation requirements that better reflect historic use patterns, and are generally lower than the modified Blaney-Criddle Model on an annual basis.

Comparison of 2005–2006 LWC Plan and 2000 LWC Plan

Projected Water Demands

Table 37 compares the projected average gross water demands estimated in the 2000 LWC Water Supply Plan with those estimated for the 2005–2006 LWC Update. **Table 38** does the same for the 1-in-10 year drought projected demands.

Table 37. End Point Projections of Average Water Demands in the 2000 LWC Plan and 2025 LWC Plan Update using Gross Demand.

Water Use Category	2000 LWC Plan Average Demands for 2020 (MGD)	2006 LWC Plan Average Demands for 2025 (MGD)	% Change 2000 LWC Plan (2020) vs. 2005– 2006 LWC Update (2025)
Public Water Supply	155.1	272.2	75%
Domestic Self-Supply and Small Public Supply Systems	17.6	31.1	77%
Commercial & Industrial Self-Supply	20.0	28.9	45%
Recreational Self-Supply (Golf Course)	197.7	62.2	-69%
Thermoelectric Power Generation Self-Supply	0.8	66.9	8263%
Agricultural Self-Supply	709.0	729.2	3%
Total Water Use	1100.1	1190.5	8%

a. Gross average demand projections totals to be determined when all project information is complete. See Table 4.

Table 38. End Point Projections of 1-in-10 Year Drought Demands in the 2000 LWC Plan and 2005–2006 LWC Plan Update using Gross Demand.

Water Use Category	2000 LWC Plan 1-in-10 Year Demands for 2020 (MGD)	2006 LWC Plan 1-in-10 Year Demands for 2025 (MGD)	% Change 2000 LWC Plan (2020) vs. 2005–2006 LWC Plan Update (2025)
Public Water Supply	165.9	288.5	74%
Domestic Self-Supply and Small Public Supply Systems	18.7	33.0	76%
Commercial & Industrial Self-Supply	20.0	28.9	45%
Recreational Self-Supply	229.0	73.9	-68%
Thermoelectric Power Generation Self-Supply	0.8	66.9	8262
Agricultural Self-Supply	841.0	967.0	15%
Total Water Use	1275.3	1458.2	14%

The most significant differences between the 2000 LWC Plan demand estimates and the demands estimated in this plan update occur for the following reasons:

- Population projections for the 2005-2006 LWC Plan Update show much larger growth than projections in the 2000 LWC Plan Update. This has a large effect on both Public Water Supply and Domestic Self-Supply demands.
- In the Thermoelectric Power Generation category, the 2000 LWC Plan did not project any additional power generation needs for the planning area. The current plan update projects five new power generation facilities to be located in the LWC Planning Area.

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